CASE NO. 21-CI-06290

JEFFERSON CIRCUIT COURT
DIVISION FOUR (4)
JUDGE JULIE KAELIN

MATTHEW STRECK, INDIVIDUALLY,
AND
KAITLYN STRECK AND KARA STRECK, BOTH
MINORS, BY AND THROUGH THEIR PARENT,
GUARDIAN, AND NEXT FRIEND, MATTHEW STRECK PLAINTIFFS

v.

JOHNSON AND JOHNSON, ET AL. DEFENDANTS

AFFIDAVIT OF WILLIAM E. LONGO, PH.D.

Comes the Affiant, William E. Longo, PH.D., and after being duly sworn and according to the law, deposes and states as follows:

1. I have a Bachelor of Science degree in Microbiology, a Master of Science degree in Engineering, and a Doctorate in Philosophy in Materials Science and Engineering, from the University of Florida.

2. I am a member of numerous organizations and professional groups related to the testing and analysis of materials, including asbestos-containing products, such as the former Environmental Protection Agency ("EPA") Peer Review Group for their Asbestos Engineering Program, the American Industrial Hygiene Association ("AIHA"), Materials Research Society, American Society for the Testing of Materials ("ASTM"), and the American Society of Materials. I have given numerous lectures, including "Settled Dust: Asbestos and Other Particulates," "The Role of the Laboratory Manager, Quality Assurance Officer, and the Analyst for NIST Accreditation," and "Fundamentals of Asbestos Analysis by TEM."

3. Additionally, in the past, the EPA requested that I, along with other scientists, help develop the EPA's protocol for taking and analyzing settled asbestos dust samples. As a member of ASTM, I was also responsible for writing one of the ASTM asbestos dust analysis standards.

4. I am currently employed at Materials Analytical Services, LLC ("MAS") as the CEO. For the last 33 years, I have studied the content, type, and release of asbestos fibers from asbestos-containing products. MAS is accredited by the American Industrial Hygiene Foundation ("AIHA") for measurement of asbestos fibers by Phase Contrast Microscopy ("PCM") and for the analysis of other types of both organic and inorganic analytes. MAS is accredited by the American Association for Laboratory Accreditation A2LA for analysis of Asbestos in Cosmetic Talc

PLAINTIFF'S EXHIBIT A

Products by PLM[1] (Blount prep method using heavy liquid separation: ISO 22261, ISO 22262) and Transmission Electron Microscopy ("TEM") (ISO 22262-1, ISO 22262-2.

5. On page 4, Item 3 of Chattem's Motion to Compel Paul Hess, Chattem states the following: "Dr. Longo started MAS in 1987 to support and profit from his work on asbestos litigation, which was primarily for plaintiffs." Part of this statement is not true. MAS was started in 1987, but from 1987 to 1991 or 1992, I only worked on one legal case for a plaintiff, and it did not involve asbestos. The reason that MAS was started in 1987 was due to the Asbestos Hazard Emergency Act (AHERA) that the EPA was putting into place that entailed new regulations on how to deal with asbestos issues in school.

6. As a materials scientist, I study the relationships among structures, properties, synthesis, and performance of a wide range of materials. I examine why and how materials behave under various conditions, such as temperature, pressure, stress, or exposure to climatic conditions, and how materials are used in every aspect of people's lives. I have spent the last 33 years studying all aspects of asbestos analysis including the use of air samples to analyze the airborne asbestos dust generated from the use of asbestos-containing products. This would include both the use of a midget impinger and air cassettes. Under my direction, our laboratory has analyzed approximately 400,000 asbestos bulk samples, including cosmetic talc products, and tens of thousands of air samples for potential airborne asbestos fiber concentrations.

7. I have published numerous articles on the subject of analysis and testing of asbestos-containing materials, including the quantification of asbestos particles released upon manipulation of these asbestos products in the manner performed in the work environment. My articles include: Demonstration of the Capability of Asbestos Analysis by Transmission Electron Microscopy in the 1960's in Microscope; Asbestos Exposure During and Following Cable Installation in the Vicinity of Fireproofing in Environmental Choices Technical Supplement; Fiber Release During the Removal of Asbestos-Containing Gaskets: A Work Practice Simulation, published in the Applied Occupational and Environmental Hygiene Journal in 2002; and Zonolite Attic Insulation Exposure Studies, in the International Journal of Occupational Health, published in 2010.

8. Most recently, in February 2020, I and my co-authors published an article in the Journal of Occupational and Environmental Medicine reporting on 10 cases of serous ovarian cancer among users of Johnson & Johnson cosmetic talc products. [Steffen, et al., Serous Ovarian Cancer Caused by Exposure to Asbestos and Fibrous Talc in Cosmetic Talc Powders—A Case Series (Feb. 2020) 62 J. Occup. Environ. Med. e65.] Talc was detected in all 10 tissue samples. As for those same samples, asbestos was detected in eight of them. The main types of asbestos identified in tissue, tremolite and anthophyllite, constitute a fingerprint for talc containing asbestos and indicate that the individuals in those cases were exposed to asbestos through their use of cosmetic talc powder. These cases provide more evidence of the causal link between asbestos, talc,

[1] Polarized Light Microscope.

and ovarian cancer. They also show that asbestos is present in consumer talc products at a level sufficient to cause disease.[2]

9. I was invited as a Speaker to the U.S. Congressional Subcommittee on Economic and Consumer Policy hearing on December 10, 2019, that was entitled "Examining Carcinogens in talc and the Best Methods for Asbestos for Detection". My presentation was on the use of heavy liquid separation of asbestos in J&J cosmetic talc for the best TEM analytical sensitivity. On February 4, 2020, I gave a presentation to the FDA on "Testing Methods for Asbestos in Talc & Cosmetic Products Containing talc", at their Public Meeting in Rockville, Maryland. On March 3, 2020, I received a copy of a letter that Chairman Raja Krishnamoorthi of the Subcommittee on Economic and Consumer Policy wrote to Dr. Stephen M. Hah Commissioner of the Food and Drug Administration, stating that the FDA needed to incorporate the heavy liquid separation method when they updated their cosmetic talc testing requirements.[3]

10. MAS has employees with expert knowledge in a broad range of fields including material sciences, organic and inorganic chemistry, physics, biology, microbiology, industrial hygiene, geology, and all types of microscopy. MAS has performed consulting work for government agencies such as the Centers for Disease Control and the National Institutes of Health. MAS has also worked as an expert for the Cities of New York, Los Angles, San Francisco, Baltimore, Boston, and Chicago, the States of New York, Utah, Hawaii, and Texas in their respective asbestos products building litigations against former asbestos manufactures of surface treatment products (fireproofing, acoustical plasters etc.). MAS employs this vast array of experts because it is often retained to conduct large and complex projects the subject matter of which crosses multiple scientific disciplines. MAS employs a collaborative approach to projects by delegating work to qualified staff scientists. Each scientist relies upon the work of others in the laboratory pursuant to industry standards and protocols. MAS's work is often complex and time-consuming, and impossible for a single scientist to complete alone. While scientists are given discrete tasks, quality control methods employed by MAS ensure that the work performed by qualified staff scientists meets industry and scientific standards. I personally oversee efforts to ensure quality control and that laboratory protocol is followed. This collaborative approach is common practice and is the industry standard.

11. MAS previously employed Paul Hess as a microscopist, specializing in PLM. He is no longer a full-time employee at MAS. As with all of our analysts at MAS, I cannot require him to give a deposition in any case in which I am a retained expert. Further, most of MAS's analysts perform technical work tangentially connected to litigation in which I am retained as an expert witness, but do not personally offer their services for litigation purposes. This is a common practice. In the 30 years that Mr. Hess has worked for MAS, he has never given a deposition in asbestos litigation, and testifying was never a job responsibility for him while employed at MAS. In fact, no employee of MAS has ever been required to give a deposition unless they have been designated as either a fact witness or as an expert. However, in the past, a two former cosmetic talc companies have tried to use the courts, on a number of occasions to gain excess to either

[2] A true and correct copy of that article is attached hereto as **Exhibit A** and incorporated fully herein by reference.
[3] **Exhibit B**: True and correct copy of Raja Krishnamoorthi's March 3, 2020, Letter to the FDA.

documents that I was not relying on, or to force former employees of MAS to testify in cases where they were not designated as experts. For example, former MAS employee Mike Mount, was subpoenaed in 2021, concerning two talcum powder analysis projects he had performed in 2009 and 2013. In Larry Newton's case, another employee of MAS was subpoenaed a number of times in case where I was the designated expert concerning exposure to asbestos from brakes, and Mr. Newton was not. In each and every case, the attorney's representing either myself, MAS LLC., and current or former employees of MAS, were successful in getting the subpoenas permanently squashed.

12. MAS microscopist are trained in either TEM, PLM and or PCM. Typically, PLM microscopists or analysts possess degrees in geology or mineralogy. Currently the two senior PLM analysts at MAS were trained at the McCrone Institute in Chicago, IL. After training, each analyst is permitted to analyze samples under the supervision of a more experienced analyst, who ensures the work is performed to MAS, scientific, and industry standards. For quality control assurance, I and MAS managers perform reviews to ensure that all analysts adhere to standard operating protocols. MAS's training and quality control meets industry standards and ensures that laboratory results are the product of sufficient procedures and methods. Additionally, in the talcum powder PLM analysis, for either amphibole asbestos or chrysotile, I review all the analytical data to verify the PLM analytical results, that includes the photographs for the following: dispersion staining (determination of refractive induces), elongation, cross polars and an image with no polar filters. Additionally, I will review a portion of the talc sample with the PLM.

13. It is typical for laboratories, such as the one operated by MAS, to assign employees specific tasks or functions. As previously mentioned, MAS employs microscopists specially trained in PLM or TEM. It is not uncommon for a materials scientist to rely upon the work of others within his or her laboratory to carry out their assigned responsibilities, or to rely upon the work of others to form opinions. MAS is often employed to perform complex and time-consuming undertakings. A single individual could not possibly perform each function of these complex tasks single-handedly. Instead, everyone in the laboratory relies upon the work of others to perform their job. It is commonplace for scientists to rely upon the work of others so long as they are reasonably assured the work was performed by competent individuals utilizing generally accepted standards with proper quality control measures. It is my opinion that the work performed at MAS meets industry standards, and it is acceptable for me to rely upon the work of MAS's PLM analysts, as well as TEM analysis to perform my work and to form my opinions. In fact, defense experts for the cosmetic talc litigation, such as Dr. Sanchez, and Mr. Alan Seagrave do not perform their own PLM analysis for litigation purposes. As far as I know, neither Dr. Sanchez nor Mr. Seagrave's PLM analysts have been asked by any Plaintiff's attorneys to give depositions in any asbestos litigation.

14. I have been qualified many times in courts throughout the United States as an expert witness in material science, optical and electron microscopy, and industrial hygiene matters relating to asbestos issues, including cases involving talc and talcum powder products.

15. Moreover, I have been qualified as an expert witness regarding my analysis of cosmetic talcum powder products, including the talcum powder products at issue in this case, in more than 30 cases by courts across the country in 8 different states:

Case Name	Case Number	Jurisdiction
Herford v. Imerys Talc America, et al.	BC646315	Los Angeles, CA
Anderson v. Johnson & Johnson, et al.	BC666513	Los Angeles, CA
Brick v. Imerys Talc America, et al.	BC674595	Los Angeles, CA
Weirick v. Johnson & Johnson, et al	BC656425	Los Angeles, CA
Allen v. Colgate-Palmolive Co., et al.	DR180132	Eureka, CA
Leavitt v. Johnson & Johnson, et al	RG17882401	Alameda, CA
Blinkinsop v. Johnson & Johnson, et al.	BC677764	Los Angeles, CA
Koretoff v. Johnson & Johnson, et al.	BC656506	Los Angeles, CA
Fong v. Johnson & Johnson, et al.	BC675449	Los Angeles, CA
Schmitz v. Johnson & Johnson, et al.	RG18923615	Alameda, CA
Cabibi v. Johnson & Johnson, et al.	BC665257	Los Angeles, CA
Crudge v. Johnson & Johnson, et al.	BC685901	Los Angeles, CA
Lanzo v. Imerys Talc America, et al.	MID-L-4385-16AS	New Brunswick, NJ
Henry v. Johnson & Johnson, et al.	MID-L-1784-17AS	New Brunswick, NJ
Rimondi v. Johnson & Johnson, et al.	MID-L-2912-17AS	New Brunswick, NJ
Barden v. Jonson & Johnson, et al.	MID-1809-17AS	New Brunswick, NJ
Etheridge v. Johnson & Johnson, et al.	MID-L-0932-17AS	New Brunswick, NJ
McNeil v. Johnson & Johnson, et al.	MID-L-7049-16AS	New Brunswick, NJ
Ronning v. Johnson & Johnson, et al.	MID-L-6040-17AS	New Brunswick, NJ
Boyd-Bostic v. Johnson & Johnson, et al.	17-CP-16-0400	South Carolina
Johnson v. Johnson & Johnson, et al.	18-CP-40-01781	South Carolina
Ingham v. Johnson & Johnson, et al. (22 cases)	1522-CC10417-01	St. Louis, MO
Kerkhof v. Johnson & Johnson, et al.	439392	Montgomery County, Maryland
Olson v. Johnson & Johnson, et al.	190328/2017	New York, NY
Pipes v. Johnson & Johnson, et al.	CJ-2017-3487	Oklahoma City, OK
Hayes v. Colgate-Palmolive Co., et al.	16-CI-003503	Jefferson Circuit Court, KY
O'Hagan v. Johnson & Johnson, et al.	RG19019699	Alameda, CA
McNeal v. Whittaker, Clark & Daniels, Inc., et al.	BC698965	Los Angeles, CA
Zimmerman v. Whittaker, Clark & Daniels, Inc., et al.	BC720153	Lost Angeles, CA
Prudencio v. Johnson & Johnson, et al.	RG20061303	Alameda, CA
Johnson v. Johnson & Johnson, et al.	20STCV17335	Los Angeles, CA
VanKlive v. Johnson & Johnson, et al.	RG20062734	Alameda, CA
Myers v. Avon Products, Inc., et al.	BC720136	Los Angeles, CA

All of the cases involved my analysis of talcum powder products manufactured with Italian talc ore from the same talc ores as used in talcum powder products such as Johnson's Baby Powder, Mennen Baby Magic and Shave Talc, Avon, Cashmere Bouquet, Chanel, and many others. In addition, the *Hayes*, *Pipes*, *Henry*, *Schmitz*, and *Allen* cases involved my analysis of products containing the same Montana talc used in the Gold Bond talcum powders at issue in this case.

16. On page 4, last paragraph for item 5. of Defendant Chattem's motion, it states that "Longo and MAS claim to have developed a new unique and unproven methodology for examination of talc products for the presence of asbestos." This statement by Chattem is completely misleading and bluntly not true. The method I am using was developed by the Colorado School of Mines (CSM) in 1973 that used the concept of heavy liquid separation to concentrate either amphibole asbestos in the heavy section or pellet in the bottom of the test tube, and chrysotile in the light portion or top of the test tube. The heavy pellet and the minerals at the top of the test tube are separately removed using a laboratory pipette. It took CSM approximately 1 year for the development of this double density sample preparation method. The concentrated samples are analyzed by PLM.

17. The use of HLS sample preparation is nothing more than a concentration process that removes interfering minerals thereby increasing the analytical sensitivity for the target minerals, in case either chrysotile or amphibole asbestos (tremolite & anthophyllite asbestos. The first recorded use of HLS for mineral separation was the California gold rush that started in 1848. The panning of gold used the density difference between gold, density of 19 g/cc versus soil of approximately 2.3 g/cc. By suspending the soil mixture in water by slow careful hand movement allows the gold particles to sink to the bottom of the pan, while pouring off the suspended water/soil mixture. This process is repeated until there are only small pebbles and sometimes gold particles left in the bottom of the pan. The following paragraph provides additional information concerning the CSM sample preparation.

18. Talc defense expert Mr. Alan Segrave also uses the same heavy liquid sample (HLS) preparation methods to analyze talcum powder samples for asbestos. On page 2 of Mr. Seagrave's September 21, 2022, Talc Expert Report, he states that the Colorado School of Mines (CSM) HLS sample preparation method was used for their chrysotile analysis by both PLM and TEM. Additionally, on page 2 of the report, Mr. Seagrave states that for their amphibole asbestos analysis, they prepared the talc sample using the ISO-22262-2 HLS method. For the actual PLM and TEM analysis Mr. Seagrave referenced both the ISO-22262-1&2 analytical methods. Alan Seagrave, who is a defense expert involved in cosmetic talc litigation, used the Colorado School of Mines HLS sample preparation method for his chrysotile analysis, demonstrates that this sample method is neither unique nor novel.[4]

19. Based on testing of the Guangxi Chines talc done by talc manufacturer/supplier, Imerys, as well as by defense expert Andreas Saldivar under contract for the FDA, it appeared that chrysotile was the asbestos mineral that was found in the Guangxi Chinese ore used by companies manufacturing cosmetic talc products, like Chanel, Avon and Johnson & Johnson. As a result, following ISO 22262, my laboratory began investigating sample preparation techniques sensitive to identifying chrysotile in talc. In my review, I came across a heavy liquid separation ("HLS") sample preparation technique for PLM developed by Johnson & Johnson's consultant, Colorado

[4] **Exhibit C**: Expert Report of Mr. Alan Segrave dated 9/21/2022.

School of Mines (CSM) in 1973, specifically for the detection of chrysotile in talc, as well as amphibole asbestos.[5] My laboratory implemented the CSM PLM preparation technique for chrysotile in January 2020. [6]

20. Initially, using the CSM sample preparation technique, we demonstrated that the use of HLS at a density of 2.70 to 2.72 g/cc can concentrate the chrysotile if present at a detection limit of approx. 0.0001 wt. % or above by PLM. At that time, our reported weight percentages of chrysotile in cosmetic talc were overestimated caused by our use of the NIST 1886b chrysotile for the spiked weight standards. The large size of chrysotile bundles from the NIST standard caused our PLM analysts to overestimate the visual volume weight estimates by approximately 2 to 3 orders of magnitude. As a result, we prepared spiked talc standards using "Calidria," a trade name used by Union Carbide, for their chrysotile asbestos product from the Coalingual chrysotile mine in Californian, a smaller milled product consistent with what is expected in cosmetic talcum powder. The initial UCC Calidria standard was a grade RG-144, was a better match for the chrysotile detected in the cosmetic talcs we analyzed for two primary reasons: 1) the bundle length and width of the Calidria RG 144 chrysotile product has a population of chrysotile structures where some of the chrysotile bundle sizes where are in the same range as what we are detecting in the size milled cosmetics talc, and 2) the refractive index (RI) ranges for the Calidria RG 144 are in the range of the milled chrysotile in the talcum powder for the same size chrysotile bundles.

21. In 2022, I further refined the use of the Calidria chrysotile standard by using UCC's Calidria grade SG-210, which has a finer milled chrysotile size then the RG-144, and is more consistent with the chrysotile particle size and characteristic found in cosmetic and pharmaceutical grade talcs including Chattem's Gold Bond talcum powder product. All aspects of the use and analysis of the UCC Calidria chrysotile grade SG-210, as an additional chrysotile standard, was instituted under my direction and control.

22. The average size of the UCC SG-210 chrysotile bundles was found to be approx. 10.5 μm in length, the range of the refractive indices was found to be 1.558 to 1.571, with an average of approx. 1.565 for the parallel direction or designated as the gamma (γ) direction. For the perpendicular direction (alpha α) the range of refractive induces was determined to be 1.551 to 1.560, with an overall average of 1.556. When compared to the chrysotile measurements found in the Gold Bond, it is almost an exact match, as shown in the following paragraph.

23. For MAS Gold Bond projects M71584-001, M71535-003, M71535-005, M71535-016 and M712536-002, 003, 004 & 005 were prepared by both the ISO and CSM method. For these five Gold Bond, 23 chrysotile bundles were analyzed with photographic documentation. The average refractive induces found the chrysotile bundles in Gold Bond were 1.567 for the parallel

[5] Colorado School of Mines Research Institute Report Re: Mineralogical Examination of Five Talc Samples to W.H. Ashton from W.P. Reid and W.T. Canaer, February 26, 1973; Colorado School of Mines Research Institute Report: Mineralogical Examination of Four Samples for Tremolite and Chrysotile form W.P. Reid and W.H. Ashton, April 2, 1973, attached hereto as **Exhibit D.**

[6] As with the Chinese Guangxi talc ores, the talc ores of Southwestern Montana have similarly been shown to contain predominantly chrysotile (in historic testing, geological surveys and literature, and current testing). Accordingly, we implemented this same CSM preparation technique on the Montana ores and Montana talc-containing products we analyzed (Gold Bond, Clubman, Mennen, Cashmere Bouquet).

or gamma direction with a range of 1.562 to 1.571, and an average of 1.554 in the perpendicular or gamma direction with a range of 1.551 to 1.561. The average size of the chrysotile bundles in the Gold Bond containers showed an average length 9.6 µm and average width of 1.8 µm.

24. The use of an appropriate standard comparison is required by the ISO 22262-1 PLM method.[7] This is particularly important when analyzing chrysotile that occurs naturally in talc as opposed to classic chrysotile that is mined and exploited as an additive to commercial products because the optical properties are different. The NIST and HES standards for chrysotile are large commercial grade long form chrysotile more akin to Canadian chrysotile that was used to weave and spin into textiles. The chrysotile that occurs in Coalinga, California (where Calidria is derived) is short, that is further milled for both the RG-144 and SG-210. The varying range of refractive indices for chrysotile worldwide was published by McCrone in 1974.[8] Indeed, even defense expert, Dr. Mickey Gunter, admits that the properties of chrysotile and RI ranges vary depending on the geologic deposit.[9] Beyond the size difference, Calidria SG-210, like the chrysotile found in consumer talcum powder products, is finely milled to a minus 200 grid sieve size or a minus 325 sieve size. The size of the bundles found in the Calidria SG-210 are the same size as the bundles my laboratory is seeing in consumer talcum powder products, including Gold Bond and Mennen. This Calidria SG-210 standard has been characterized by PLM, including the determination of the ranges of refractive indices. That standard gives the same range of refractive indices that the chrysotile in the talc does. In fact, Dr. Gunter, while working for the makers of Gold Bond, analyzed samples of RG-144 and SG-210 that my laboratory provided to him and confirmed that "Calidria chrysotile can produce a range of CSDS colors from bluish to golden-yellow in 1.550 liquid"[10] consistent with my laboratory's findings.

25. Additionally, a recent publication by Dr. Shu-Chen Su, in 2022 concerning PLM dispersion staining technique for asbestos analysis, MAS started using RI Fluid 1.560 for the talc analysis. [11] The reason for this was that in Dr. Su's publication (page 56) he states that there are chrysotile minerals whose refractive index are significantly higher than those of the standard chrysotile from the NIST SRM 1866 set. In that case, 1.555 or 1.560 RI liquid, instead of 1.550 RI liquid, should be used to determine γ (the parallel direction refractive indices) during dispersion staining process. For this reason, MAS switched from 1.550 to 1.560 RI Fluid for the PLM analysis of chrysotile in cosmetic talc.

26. These modifications do not alter the ISO 22262-1 method for identifying and quantifying asbestos in a talc sample. These modifications relate to the CSM preparation technique and as indicated above, ISO 22262-1 specifically allows for the use of preparation techniques the

[7] **Exhibit E:** ISO 22262-1, at 17-18
[8] **Exhibit F:** McCrone, "Detection and Identification of Asbestos by Microscopic Dispersion, "Environmental Health Perspective, Vol. (1974).
[9] **Exhibit G:** Deposition of Mickey Gunter, Ph.D., taken in *Woods/Hauser*, July 20, 2022, at 34:14-36:13.
[10] **Exhibit H:** Deposition of Mickey Gunter, Ph.D., taken in *Woods*, September 9, 2022, at 49:23-50:10.
[11] **Exhibit I:** Su, S-C., "The Dispersion Staining Technique and Its Application to Measure Refractive Indices of Non-opaque Materials, with Emphasis on Asbestos Analysis." The Microscope Vol.69:2, pp 51-69, 2022.

analyst deems appropriate for the sample being analyzed.[12] The modifications are also appropriate in that they serve as effective updates to a preparation technique developed nearly 50 years ago in 1972. For example, we now measure lead levels in blood with inductively coupled plasma mass spectrometry, which permits great accuracy and precision. But they used to measure lead by a colorimetric method where the reagents used would produce different absorption for a positive sample. As another example, scientists used optic microscopes to count red blood cells. But today, red blood cells are counted automatically, most commonly with electronic impedance or laser light scattering (flow cytometry). Scientists build on the effects of those who came before them. Moreover, defense experts, Dr. Gunter, and Andreas Saldivar, agree that modifications to methods are appropriate. Mr. Saldivar, when consulting for FDA, follows a "modified ELAP" method when analyzing talc for asbestos. [13] Dr. Gunter follows no peer-reviewed published method in his analysis of talc for asbestos; he follows what he calls "the scientific method" in which he determines what protocols to employ and how much data to collected irrespective of any actual method.[14] Dr. Gunter believes that if a person has the research experience to analyze materials for asbestos, they would know what analytical equipment to use: "It's how science works."[15] With over 30 years of research experience in analyzing all manner of products and materials for the presence of asbestos, I certainly know what analytical equipment to use in order to answer the question "is there asbestos there."[16]

Reliable and Responsible Results

27. Initially, we confirmed our findings of chrysotile in talc using the Calidria reference standard in four Johnson's Baby Powder products manufactured with Guangxi Chinese talc were in fact chrysotile (as opposed to sepiolite, talc fibers or talc plates on edge, antigorite, lizardite, brucite, or ribbony cellulose fibers) by comparing and matching the RI range measured to the reported chrysotile RI ranges by two of the leading experts in PLM dispersion staining analysis: Dr. Walter McCrone[17] (a consultant to Johnson & Johnson, Colgate, Revlon, and others) and Dr. Shu-Chun Su.[18] We followed this same approach with the Gold Bond and Mennen products and Montana ores for our chrysotile analysis. This comparison can be seen below:

	Refractive Index Range Parallel	Refractive Index Range Perpendicular
MAS	1.568 to 1.561	1.561 to 1.551 CSM
Dr. McCrone	1.570 to 1.548	1.553 to 1.534
Dr. Su	High to Low Range	High to Low Range

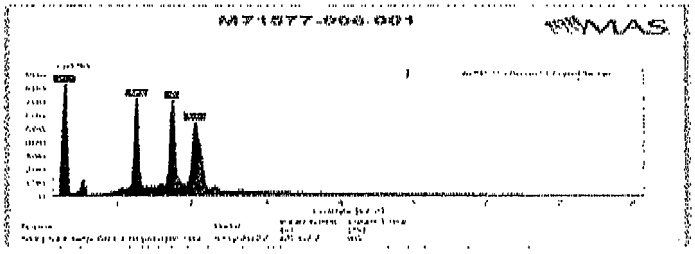
[12] *See* **Exhibit E**: ISO 22262-1, at 14.
[13] **Exhibit J**: Deposition of Andreas Saldivar, taken in *Zimmerman v. Autozone, et al.*, June 21, 2019, at 26:16-27:9, 108:18-109:1, 113:13-114:14.
[14] **Exhibit K**: Deposition of Mickey Gunter, Ph.D., *Peckham*, November 19, 2021, at 98:6-99:6.
[15] *See* **Exhibit K**, at 98:20-99:1.
[16] *Id at 98:12*
[17] *See* **Exhibit F**: McCrone, "Detection and Identification of Asbestos by Microscopic Dispersion, "Environmental Health Prospective, Vol. 9 (1974), at page 58, Figure 1.
[18] Su, "Rapidly and Accurately Determining Refractive Induces of Asbestos Fibers by Using Dispersion Staining Methods, "(2003), at pg. 7, Tables 3 and 4, attached hereto as **Exhibit L**.

	1.580 to 1.540	1.579 to 1.541

28. Moreover, my laboratory confirmed our identification of chrysotile was correct and not a misidentification of fibrous talc, sepiolite, antigorite, lizardite, brucite or ribbony cellulose fibers. The key optical property to differentiation of fibrous talc from chrysotile asbestos when using the PLM method is by determining the difference in the birefringence (BIR) value between these two elongated minerals. Most PLM analysts will just use the PLM cross-polar condition to visually estimate the magnitude of the BIR (Low, Moderate, or High) by the amount of brightness observed. A more accurate determination of BIR is to calculate the numerical BIR value by simply subtracting the measured perpendicular RI from the measured parallel RI. Fibrous talc and talc plates on edge will have calculated BIR values that are typically just below, at or just above 0.05 which is in the High range area. Chrysotile on the other hand will have BIR values that range from the upper end of Low to the lower end of Moderate range. This significant BIR difference between fibrous talc and chrysotile is verified by Deer, Howie, and Zussman as well as the EPA in the 600/R-93/116 PLM methodology document.[19] Our analysis demonstrated significant BIR difference between fibrous talc and the chrysotile we identified, confirming we did not misidentify fibrous talc as chrysotile.

29. Recently, my laboratory definitively confirmed the chrysotile findings in talc using scanning electron microscopy ("SEM") with electron diffraction analytical data ("EDS"). Even defense expert, Dr. Gunter, agreed that the chemical composition data is consistent with chrysotile.[20] A representative image is provided below:

Chrysotile Electron Microscopy in Gunter's Previous Deposition Montana Talc Sample



Chemistry of Chrysotile Confirmed by Electron Diffraction in Gunter's Previous Montana Talc

[19] The EPA R93 protocol also provides RIs and BIR data for cellulose ribbons.

[20] *See* **Exhibit H**: Deposition of Mickey Gunter, Ph.D., taken in *Woods*, September 9, 2022, at 98:20-99:6 ("folder 4" was the EDS for the Montana talc samples).

30. The CSM preparation technique utilizes proven scientific methods: CSM developed the use of heavy liquid separation, the use of a centrifuge to separate out different constituent materials of different weights, and the use of enhanced resolution to get the most accurate results. Moreover, the CSM preparations technique has been validated by two different PLM analysists in our laboratory, Paul Hess, and Chris Labor,[21]

31. The method set forth above is not novel or designed for the purposes of litigation. To the contrary, the inspiration for the technique was inspired by the double density sample preparation method developed by the CSM in 1973 on behalf of J&J. How the CSM developed the chrysotile school of mines method is explained in my April 13, 2021, Long's Baby Powder Report that was produced in the *Prudencio* matter[22].. In that report on page 14, paragraph labeled **"Colorado School of Mines (w HLS) Sample Preparation of Cosmetic Talc"**, there is a full explanation how the method was developed, but an interesting fact about the method is that they told Johns-Manville that they would not share the technology with JM and would probably patent the double density method. (See, page 17, paragraph labeled **"Johns-Manville"**). This statement shows, in my opinion, just how good the method was. Also, the question arises as to why the chrysotile heavy liquid method was never used by J&J after 1973. The answer to this question was found in two J&J documents: 1) **"The limitation of this method is that it may be too sensitive"** (JNJAZ-000001892 to 1989); and 2) **"We deliberately have not included a concentration technique as we felt it would not be in worldwide company interest to do this"** (JNJNL61_0000062953).

32. My laboratory, MAS, has now issued reports for the testing of aliquots from approximately 21 containers of Gold Bond talc products that cover the time period of 1996 through 2020—the years during which Chattem, Inc., distributed the product—for the possible presence of asbestos fibers. This number will continue to increase as I obtain and test additional containers. Eight of the aliquots of Gold Bond analyzed were part of a collection of containers retained by Chattem, Inc., and collected directly from Chattem, Inc. MAS's testing of the Gold Bond retains from Chattem, Inc., is on-going. One of the containers was obtained by MAS in 2000 and likely found to be non-detect for asbestos. However, at that time, as explained above, MAS was not using the more sensitive sample preparation method with heavy liquid separation for any type of talc testing. The remaining nine containers were provided to my laboratory by six different law firms: DOBS, Kazan McClain, Lanier Law, Levy Konigsberg, Simon Greenstone Panatier, and Weitz. Nine of those containers were owned by plaintiffs in mesothelioma litigation, two were purchased off-the-shelves of local drug stores, and one was obtained from a retailer called Poshmark.

33. The results of analysis of the 21 Gold Bond talc powder containers are contained in my reports dated April 13, 2021, September 8, 2021, September 10, 2021, October 14, 2021,

[21] Mr. Labor is a PLM analyst and has been with our laboratory since 1992 or 1993. He was taught PLM by Walter McCrone. Further, Jenny Spencer, an analyst who is not employed by my laboratory, is now doing HLS, and identifying asbestos consistently.
[22] Exhibit M: April 13, 2021, Long's Baby Powder Report

October 15, 2021, March 1, 2022, March 10, 2022, March 7, 2022, April 4, 2022, May 4, 2022, June 10, 2022, and June 22, 2022.[23]

34. The 21 Gold Bond talc products reported on to date encompass the 1996 to 2020 time period during which Chattem, Inc., distributed Gold Bond talcum powder in the United States. Beginning in 1996, Chattem, Inc., sold Gold Bond brand talcum powder products manufactured with talc from Montana. From 1996 until 2014, Gold Bond was manufactured with Barretts Minerals, Inc.'s talc from the Regal and Treasure mines in Montana and milled at the Barretts Minerals, Inc., facility in Dillon, Montana. Prior to 1992, these mines were owned by Pfizer, Inc. In 2014, Imerys Talc America became the Chattem-approved talc supplier for blending talc-containing Gold Bond products by PTI Union, LLC. The Imerys talc was Glacier 200 talc, sourced from the Yellowstone mine in Montana and milled at Imerys' Houston, Texas facility, and thereafter, distributed to PTI Union, LLC, in Missouri for use in manufacturing the Gold Bond talc products.[24] Vintage information for these 21 containers is based on documents produced by Chattem, Inc., PTI Union, and Barrett's Minerals, Inc., in litigation as well as the sworn deposition testimony of Chattem, Inc.'s person most knowledgeable. Using the above-described generally accepted methods, to date, we have identified regulated asbestos in 21 of 21 containers of Gold Bond talc products tested and reported on, including 8 of 8 containers received from Chattem, Inc., as "retains". [25]

35. My laboratory is the leading asbestos research laboratory in the country, with specific accreditation for asbestos analysis of cosmetic talcum powder products. In our analysis of Mennen Baby Magic and Shave Talc, Gold Bond, Montana and Guangxi Chinese talcs, as well as products made with the same Italian, Montana and Chinese talcs used to manufacture Mennen Baby Magic and Shave Talc, Gold Bond, and Avon talcum powder products with talc supplied by Whittaker, Clark & Daniels and Charles B. Chrystal, we followed generally accepted methods established by leading institutions and published in the peer reviewed literature. We identified regulated asbestos in the samples of Mennen Baby Magic and Shave Talc, Gold Bond, Montana and Guangxi Chinese ores, and products manufactured with those ores. Our work using these methods has been published in the peer reviewed literature, vetted in a *Kelley/Frye* hearing, and upheld by the U.S. Supreme Court and the California Court of Appeals.

36. Based on our own testing of Gold Bond, Mennen Baby Magic and Shave Talc products and Montana source ore, and products manufactured with Italian, Montana, and Guangxi Chinese ores (like Johnson's Baby Powder, Chanel No. 5, Cashmere Bouquet), as well as my review of historic testing of the Italian, Montana, and Guangxi Chinese talc ores used to

[23] True and correct copy of chains of custody for each of the 21 containers is attached hereto as **Exhibit N** and **Exhibit O**: True and correct copy of a summary chart of my laboratory's testing of Gold Bond talc powder products referenced above.

[24] *See* Affidavit of Paul Eichholz, Site Director of PTI Union, LLC, dated June 10, 2021. *See* also Chattem, Inc.'s Responses to Plaintiffs' Supplemental Interrogatories and Requests for Production in *Woods v. Kolmar Laboratories, Inc., et al*, Barretts Minerals, Inc.'s Responses to Plaintiffs' Supplemental Interrogatories and Requests for Production in *Woods v. Kolmar Laboratories, Inc., et al*, and deposition of Chattem, Inc.'s corporate Representative taken in *Woods v. Kolmar Laboratories, Inc., et al.*

[25] *See* **Exhibit O**, Table I.

manufacture those products, it is my opinion to a reasonable degree of scientific certainty that individuals who used Gold Bond talcum powder products would have, more likely than not, been exposed to fibrous asbestos, especially with repeat purchases like Mr. Streck. It is further my opinion that ambient, or background air does not contain measurable amounts of airborne anthophyllite or tremolite type fibers, unless there is an identifiable source for those fibers. Therefore, any exposure to either the tremolite asbestos series or anthophyllite solid solution series asbestos found in these products would exceed minimum threshold levels that have been shown to cause mesothelioma. Accordingly, it is my opinion that the asbestos exposure to individuals, like Matthew Streck, who regularly and consistently used Gold Bond talcum powder products was well above minimum threshold levels that have been shown to cause mesothelioma.

37. I understand Chattem has argued that my laboratory has misidentified talc plates in Gold Bond as chrysotile. The basis of this argument is that the fiber is "plainly yellow" when it should appear another color if it was truly chrysotile. This argument is erroneous for the reasons set forth above. While chrysotile may appear a different color by PLM when particles are extracted from chrysotile-added products, this would not be the case for cosmetic talc which has to be milled, which makes chrysotile bundles much smaller. The smaller size will affect the wavelength or color that is observed.

38. Additionally, the range of refractive indices determined by MAS in every Gold Bond sample analyzed are within the range published by Dr. McCrone in 1974 and by Dr. Su. "For Chattem to say that chrysotile will not appear yellow when analyzed by PLM is wrong and is not based on PLM science." More importantly, it is inconsistent with its own expert, Dr. Mickey Gunter, as set forth above.

39. Chattem has stated that Paul Hess created the Calidria standard, which MAS uses to identify chrysotile in talc. This is not true. As the head of MAS and the laboratory, I developed this standard in collaboration with Mr. Hess. Mr. Hess is not more knowledgeable concerning the Calidria standard or the PLM analysis conducted by MAS on Gold Bond containers of talcum powder.

40. The photographs taken of the asbestos fibers in Gold Bond talcum powder are representative of the fibers identified in MAS's analysis. It is uncommon for our laboratory or any laboratory to photograph all fibers, bundles, or structures identified in a PLM analysis. Photographing structures is time consuming and could take days to conclude depending on the number of structures identified. Thus, it is our practice, which is generally accepted in the materials science literature, to take representative photographs of the structures identified in a given sample.

I declare and affirm under penalty of perjury under the laws of the Commonwealth of Kentucky, that I am fully competent to make this Declaration, and that the foregoing statements are true and correct based on my personal knowledge.

WILLIAM E. LONGO, PH.D.

State of Georgia

County of Forsyth

Subscribed and sworn to before me by WILLIAM E. LONGO, PH.D., this 7th day of July, 2023.

Notary Public

My Commission Expires: 8/24/2023

Kathleen Molyneaux
Notary Public
Forsyth County
State of Georgia
My commission expires August 24, 2023